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in ungulates prevents this central fossette from appearing as an eminence on the outside of the skull, and in the dolphins the crest between it and the cerebellar fossettes is not prominent, but the vermian fossette is absent only in the orang, chimpanzee, gorilla, and man. In all these it appears occasionally. It was first found in man by Cesare Lanbroso (1871), in the skull of a criminal, and has since been frequently noted in criminals, madmen, and inferior races, especially among the Aymara, whence it has been called the " aymarian fossette." Its occurrence in the higher apes and man must therefore be considered as a mark of atavism. ——Paul Reichart, writing from Mpala, on the west coast of Tanganyika, states that the Sako (Soko) is very common in that locality. A nest was found some five hundred meters from a village. It was about ten feet above the ground, resembled the nest of a large bird of prey, and was unprotected above. The Sako sets within the nest, not under it. A band of Sakos, from six to twenty strong, frequents the neighborhood of a village. Herr Reichart compares the cry of the Sako to that of man and wife when quarreling, and characterizes it as diabolical. Mingled with this are deep bass tones and cries deceptively like those of a child. The animal is about 1.3 meters (about four feet three inches) high, very strongly built. The natives fear him more than they fear the lion, so much so that they abandon a road if a band of these apes take up their abode near it. An example of the *Balæna cisarctica* was cast ashore at Taranto, southern Italy, in 1877, and another was captured at Guetaria, not far from San Sebastian, Spain, on February 11, 1878.——At the meeting of the Royal Microscopical Society, June 11, Mr. Hazlewood called attention to human spermatozoa with two tails.——M. Testut read a paper July 7, before the French Academy on the results of his dissection of a Bosjesman from twelve to fourteen years old. The muscular system was in a more or less rudimentary state, which exists in a normal condition in various anthropoid apes and monkeys, and in some instances even in mammals of other orders. M. de Quatrefages in his remarks attempted to point out that these facts supplied no fresh arguments in favor of man's descent from a Simian prototype.

PHYSIOLOGY.[1]

THE CHOLERA BACILLUS.—The reports of the commissions under the direction of Dr. Koch, sent by the German government to Egypt and India to investigate the cause of the cholera epidemic, are of great scientific and practical interest. It was attempted early in the research to find some bacterial organism whose presence was peculiar to the disease. This was long-tried in vain, chiefly on account of the large number of diverse forms of bacteria found in the intestines of cholera patients. But finally a peculiar comma-shaped bacillus was settled upon, and found thereafter uniformly present in the intestines of subjects dead from cholera or in the evacuations from cholera patients. This "cholera bacillus" cannot be obtained from healthy people, though other bacteria occur in their evacuations, and it is absent from patients suffering from other diseases, such as dysentery, which resemble and often precede cholera. Says Dr. Koch, "In the last report I could already state that the peculiarities of the cholera bacteria were so well determined that they could safely be distinguished from others. Of these characteristics the following are the most striking: The bacilli are not perfectly straight, like other bacilli, but slightly curved, like a comma. The bending may go so far that they take the form of a half-circle. In the pure cultivation from these bent rods often arise S-formed figures, and more or less long, slightly wavy lines, of which the first are made up of two, and the last of a large number, of the cholera bacilli, which, by continued increase, have remained connected. They possess powers of locomotion, which can best be seen, and in most marked degree, in a drop of cultivation-liquid suspended on a cover-glass; in such a preparation, one sees the bacilli moving with the greatest velocity in all directions through the field. * * * Its presence is restricted to the organ in which the disease is—the bowels. In vomit, they have, as yet, only been noticed in two cases; and in both the appearance and alkaline reaction of the vomited fluids showed that the contents of the bowels, and with these the bacteria, had got into the stomach. In the bowels their history is as follows: In the first evacuations of the patient after the attack, as long as they have any form, very few cholera bacilli are present; the watery, odorless evacuations which follow, on the contrary, contain the bacilli in great numbers; while, at the same time, all other forms disappear almost entirely, so that, at this stage, the cholera bacilli are cultivated practically alone in the bowels. So soon as the cholera attack lessens, and the evacuations are again fœcal, the comma bacteria disappear gradually, and are, after convalescence, no longer to be found. The same is found to hold in cholera subjects. In the stomach no cholera bacilli were found. The bowels varied, according as death had occurred during the cholera attack or after it. In the freshest cases, the bowels showed a clear, red color; the inner lining of the intestines was still free from submucous extravasation; and the contents consisted of a colorless, odorless liquid; the cholera bacilli were present in enormous masses, and nearly pure. Their distribution corresponded exactly with the degree and spread of the inflammation of the lining membrane, the bacilli being generally not so thick in the upper intestine, but increasing toward the lower end of the smaller intestine. When, however, death has taken place later, the intestines show signs of an important reaction. The lining is dark red in the lower part of the small intestine, impregnated with extravasation of blood, and often dead on the outermost layers. The contents of the bowels are, in such cases, more or less blood-colored, and, in consequence of the reappearance of the bacteria of putrefaction, putrid and fetid. The cholera bacteria at this stage begin to disappear, but continue still to be present for some time in the solitary glands, and in their vicinity—a circumstance which first called attention to the presence of this peculiar bacterium in the bowels of the Egyptian cholera subjects. They entirely fail in such cases, only when the patient has lived through the cholera, and dies from the after-weakness. The cholera bacteria act exactly as other pathological bacteria. They occur only in their peculiar disease; their first appearance is when the illness begins; they increase in number with the severity of the attack, and gradually disappear as the illness wanes. They are found where the trouble exists; and their number at the height of the disease is so great, that their injurious effect on the lining of the intestines is explained. * * * In the linen of cholera patients the bacteria increase in the most remarkable manner, when the clothes have been soiled with the evacuations, and then, for twenty-four hours, have been kept in a moist condition. This explains the known fact that the people having to do with such affected linen are often attacked. * * * Another peculiarity of the cholera bacteria is, that they die, upon drying, much more quickly than most others. Commonly all life is extinct after three hours' drying. It has been noticed that their development only takes place well in substances having an alkaline reaction. A very small amount of free acid, which would have little or no effect on other bacteria, puts a marked check on their growth. In a healthy stomach they are destroyed, which is shown by the fact that neither in the stomach nor intestines of animals which have been constantly fed on cholera bacilli, and then killed, were any found. * * * Perhaps, when the digestion is imperfect, the bacilli may be able to pass the stomach; and the fact observed in all cholera epidemics and in India, that those suffering from indigestion are especially subject to cholera, may bear out this view."—*From the translation of Koch's Report in Science.*

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[1] This department is edited by Professor HENRY SEWALL, of Ann Arbor, Michigan.

PSYCHOLOGY.

ROMANES' MENTAL EVOLUTION IN ANIMALS.[1]—This volume is in continuation of the author's Animal Intelligence, and as the title indicates, it is largely speculative. The argument assumes the truth of the theory of evolution, and that phase of it known as Natural Selection; indeed, the author seems thoroughly committed to the latter theory, since, on p. 62, he insists that "the method of nervous evolution has everywhere been uniform," a

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[1] *Mental Evolution in Animals.* By GEORGE JOHN ROMANES, with a posthumous *Essay on Instinct.* By CHARLES DARWIN. New York, D. Appleton & Co., 1884. 12mo, pp. 411. $2.